

AMENDMENT TO THE CLAIMS

E2 1. (Currently Amended) A process for the production of at least two-ply paper laminates, the process comprising:

applying a water-soluble hotmelt adhesive having a solubility in water at 20°C of at least 3% by weight to a first layer of paper, the hotmelt adhesive ~~having a solubility in water at 20°C of at least 3% by weight~~ comprising one or more polyurethanes having a molecular weight (M_n) of at least 2,000 and wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C, and

laminating at least a second layer of paper onto the adhesive side of the first layer.

2-11. (Canceled)

12. (Canceled)

13. (Previously Added) A process as in claim 1 wherein the hotmelt adhesive has a melt viscosity (Brookfield Thermocell, spindle 27) of 400 to 20,000 mPa.s at a temperature of 100 to 180°C.

14. (Previously Added) A process as in claim 1 wherein the hotmelt adhesive has an open time of at least 0.2 second.

E1
15. (Previously Added) A process as in claim 1 wherein the hotmelt adhesive has a crystallinity (as measured by DSC) of at least about 20% of the value measured for polyethylene glycol with a molecular weight (M_n) of 6,000.

16-17. (Canceled)

18. (Currently Amended) A process as in claim ~~17~~ 37 wherein the ~~hotmelt adhesive is a~~ nonionic polyurethane ~~that~~ is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

19-25. (Canceled)

26. (Currently Amended) A hygiene paper comprising:

a first layer of paper secured to a second layer of paper by a hotmelt adhesive ~~selected from the group consisting of polyalkylene glycols having a molecular weight of at least 1,000 and~~ having a solubility in water at 20°C of at least 3% by weight and comprising one or more nonionic polyurethanes having a molecular weight (M_n) of at least 2,000, wherein a 0.3% by weight solution of the hotmelt adhesive in water has an upper cloud point of at least 60°C.

27. (Canceled)

28. (Previously Added) A hygiene paper as in claim 1 wherein the hotmelt adhesive has a melt viscosity (Brookfield Thermocell, spindle 27) of 400 to 20,000 mPa.s at a temperature of 100 to 180°C.

29. (Previously Added) A hygiene paper as in claim 1 wherein the hotmelt adhesive has an open time of at least 0.2 second.

30. (Previously Added) A hygiene paper as in claim 1 wherein the hotmelt adhesive has a crystallinity (as measured by DSC) of at least about 20% of the value measured for polyethylene glycol with a molecular weight (M_n) of 6,000.

31. (Canceled)

32. (Currently Amended) A process comprising:

applying a hotmelt adhesive to at least a portion of a first substrate layer of paper, the hotmelt adhesive comprising a ~~nonionic~~ polyurethane obtained from a polyurethane reaction mixture containing ~~as a hydrophobic chain extender for the polyurethane a chain extender~~ comprising a hydrophobic diol having a hydrophobic moiety containing from 6 to 36 carbon atoms; and

contacting a second substrate layer of paper with the hotmelt adhesive.

33. (Previously Added) The process of Claim 32 wherein the polyurethane reaction mixture further comprises at least one polyisocyanate and a polyol.

34. (Previously Added) The process of Claim 33 wherein the at least one polyol comprises a polyalkylene oxide.

35. (Currently Amended) ~~The process of Claim 33 wherein the hydrophobic diol chain extender is~~ A process comprising:

applying a hotmelt adhesive to at least a portion of a first layer of paper, the hotmelt adhesive comprising a polyurethane obtained from a polyurethane reaction mixture containing a hydrophobic structural element obtained by reacting at least one NCO-terminated oligomer with a reactant selected from the group consisting of ~~monools~~ mono-ols and monofunctional amines; and

contacting a second layer of paper with the hotmelt adhesive.

36. (Currently Amended) The process of Claim 32 wherein the hydrophobic diol ~~chain extender~~ is selected from the group consisting of 1,10-decanediol, 1,12-dodecanediol, 1,12-octadecanediol, dimer fatty acid diol, 1,2-octanediol, 1,2-dodecanediol, 1,2-hexadecanediol, 1,2-octadecanediol, 1,2-tetradecanediol, 4,4-isopropylidene dicyclohexanol, 4,8-bis(hydroxymethyl)tricyclo-[5,2,1,0^{2,6}]decanes, 1,4:3,6-dianhydro-D-mannitol, 1,4:3,6-dianhydro-D-sorbitol, 1,16-hexadecanediol, biosphenol A, monofatty acid esters of glycerol with fatty acids containing up to 22 carbon atoms, and mixtures thereof.

37. (New) A process as in claim 1 wherein the polyurethanes of the hot melt adhesive are nonionic polyurethanes.

38. (New) A process as in claim 1 wherein the polyurethanes of the hot melt adhesive are ionic polyurethanes.

39. (New) A process as in claim 1 wherein the two-ply paper laminates are two-ply hygiene paper laminates.

40. (New) A process as in claim 39 wherein the two-ply hygiene paper laminates are kitchen rolls, paper towels, paper handkerchiefs, paper napkins, toilet papers or diapers.

41. (New) A hygiene paper as in claim 26 wherein the polyurethanes of the hot melt adhesive are nonionic polyurethanes.

42. (New) A hygiene paper as in claim 41 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

43. (New) A hygiene paper as in Claim 26 wherein the polyurethanes of the hot melt adhesive are ionic polyurethanes.

44. (New) A hygiene paper as in Claim 26 which is a kitchen roll, paper towel, paper handkerchief, paper napkin, toilet paper or diaper.

45. (New) The process of Claim 32 wherein the polyurethane of the hot melt adhesive is a nonionic polyurethane.

46. (New) The process of Claim 45 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

47. (New) The process of Claim 33 wherein the at least one polyol comprises a hydrophobic homopolymeric polyalkylene glycol.

48. (New) The process of Claim 32 wherein the polyurethane of the hot melt adhesive is an ionic polyurethane.

49. (New) The process of Claim 35 wherein the polyurethane reaction mixture further comprises at least one polyisocyanate and a polyol.

50. (New) The process of Claim 49 wherein the at least one polyol comprises a polyalkylene oxide.

51. (New) The process of Claim 46 wherein the at least one polyol comprises a hydrophobic homopolymeric polyalkylene glycol.

52. (New) The process of Claim 35 wherein the polyurethane of the hot melt adhesive is a nonionic polyurethane.

53. (New) The process of Claim 52 wherein the nonionic polyurethane is a reaction product of at least one polyisocyanate with at least one polyalkylene glycol having a molecular weight of at least 1,550.

54. (New) The process of Claim 35 wherein the polyurethane of the hot melt adhesive is an ionic polyurethane.